NEWSLINE

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Truck device gives CHP a brake

By Sheri Byrd
NEWSLINE STAFF WRITER

Lab engineers and technicians gathered with California Gov. Gray Davis, Oakland Mayor Jerry Brown, members of the California Highway Patrol and members of the press Tuesday to unveil the Lab's latest contribution to anti-terrorism and homeland defense — a special device to stop hijacked trucks from becoming what Davis called "motorized missiles."

As the crowd looked on, a CHP cruiser and an empty, tanker truck sped through the Oakland Coliseum parking lot at about 30 mph. Just after the driver of the cruiser skillfully bumped a short, extra rear bumper on the back of the trailer, the trailer's wheels locked at a dead stop, sending smoke and the smell of burning rubber wafting over the crowd.

The Truck Stopping Device, as it is known, is the latest idea of retired LLNL engineer and consultant Bill Wattenburg. Wattenburg brought the idea to development with the help of Dave McCallen, director of the Lab's Center for Complex Distributed Systems.

"People forget the value of having labs like Lawrence Livermore in this state," said Davis. "This technology proves the value of the Lab to every citizen."

SHERI BYRD/NEWSLINE

Gov. Gray Davis, flanked by Ron Cochran (left) and Bill Wattenburg, unveiled the Truck Stopping Device to the press.

After a tractor-trailer crashed into the California State Capitol in January, Davis asked the CHP to develop a plan to stop a stolen or hijacked fuel truck, which could potentially be used in a terrorist bombing, explained McCallen.

See **TRUCK,** *page 8*

Supercomputing conference pushes the boundaries of global connectivity

By Don Johnston
NEWSLINE STAFF REPORT

In keeping with the theme "Beyond Boundaries," Super Computing 2001 opened new horizons in global connectivity from the mile-high city, Denver, Colo.

Participation by sites in 10 countries around the world, "from Bologna to Beijing and Anchorage to Antarctica," in the annual conference was made possible by the creation of one of the largest heterogeneous computing networks in the world — a network constructed for just one week. The conference brings together 5,000 leaders of the supercomputing and network community from industry, academia and the national labs to demonstrate new technologies and showcase results.

"The access grid, set up for SC Global as part of SC2001, made it possible for people in different locations to be content providers to the conference for the first time," said Dona Crawford, AD for Computation and SC2001 exhibits chair. "This was a new feature that opened the way for greater global participation. The talk of the conference seemed to be 'the grid' (Data Grid, TeraGrid, Access Grid, Knowledge Grid). The grid is the next step up from the Web."

A highlight of SC2001 was the announcement of the new supercomputing Top500 list. The Accelerated Strategic Computing Initiative's "ASCI White" retained the top place on the list with LLNL's ASCI

See **COMPUTING,** *page 8*

Tarter to present 'state of Lab' talk

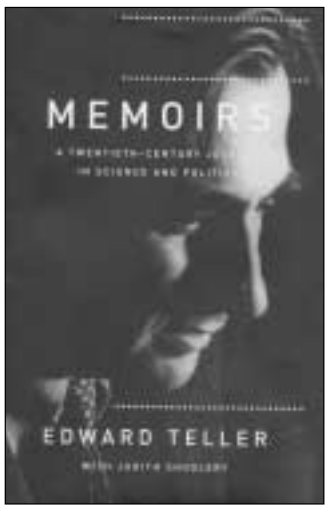
Director Bruce Tarter will present the "state of the Lab" during a special televised address at 10:30 a.m. Friday, Dec. 7. The talk will be televised on Lab TV Channel 2. All employees are encouraged to watch.

Teller memoirs recall century's defining moments

By Stephen Wampler
NEWSLINE STAFF WRITER

When looking back at some of the 20th century's most dramatic and history-making events, there stands Edward Teller.

During World War II, Teller participated in the Manhattan Project at Los Alamos as America raced Nazi Germany to build the first atomic bomb. In the war's aftermath, he helped shepherd the United States' efforts to build the first hydrogen bomb. In 1955, as the Cold War continued, Teller advanced the concept of submarine-launched nuclear missiles, providing the United States with the third and most secure leg of its nuclear retaliation triad.



And later, in the 1980s, the theoretical physicist served as a determined advocate for the development of a ballistic missile defense system to protect the United States from nuclear attack

But of all of the 93-year-old scientist's contributions to national security, the achievement of which he remains proudest is his "role in the establishment and work of the Livermore Laboratory."

That viewpoint, as well as the scientist's life story from his 1908 birth in Budapest, Hungary, through events of

See **MEMOIRS,** *page 4*

Latest review finds NIF continuing to make 'excellent technical progress'

By Sue Stephenson
NEWSLINE STAFF WRITER

"The National Ignition Facility Project is making excellent technical progress," said Willie Clark, the Department of Energy, National Nuclear Security Administration Limited Technical Status Review Team Executive, speaking at the summary and close-out session after three days of intensive review.

Twenty-five experts from throughout the DOE complex were on site earlier this month to conduct a

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25th anniversary employees honored

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Survey teams honing suggestions

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'Gentle' reminder for HOME assistance

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LAB COMMUNITY NEWS

Weekly Calendar

The Technical Meeting Calendar will be distributed electronically today. It also is available on the Web at www.llnl.gov/pao

Tuesday 4

Robert Cleary, U.S. attorney for New Jersey, will present **"Protecting Intellectual Property: What Have You Got To Lose?"** at 10 a.m. in the Bldg. 123 auditorium. The SAFE Program is hosting the talk. All LLNL and Sandia employees and contractors and DOE personnel are invited to attend this unclassified presentation.

Wednesday 5

Richard Farnsworth, manager of education andoutreach programs for the Lab's Science & Technology Education Program, will discuss the new **Edward Teller Education Center** and potential opportunities for cooperation with local professional societies at the next American Nuclear Society (ANS) dinner meeting. The dinner will begin at 7 p.m. at the Hungry Hunter restaurant in Pleasanton. RSVP to Neil Brown at brown93@llnl.gov.

Thursday 6

A kickoff workshop on **"How to Win an R&D100 Award"** is scheduled for 1:30 p.m. in Bldg. 551W, room 1400. The presentation will cover the submission criteria, assistance available through TID, and one of last year's winners to share how to pull a submission together. In addition, there will be a current R&D 100 judge sharing his experience and what he looks for when judging submissions. Contact: Darlene Horne, 3-1929.

• • •

A representative from **Fidelity Investments** will meet with employees today and Friday. Fidelity Investments are available to UC's 403(b) participants in addition to the UC-managed investment funds. For an appointment, call Fidelity at 1-800-642-7131. Be sure to specify you are an LLNL employee.

Friday 7

A representative from **California Casualty Insurance** will be in the Benefits Office. Appointments are required and may be scheduled by calling 2-9955. California Casualty offers individual rates to Lab employees by payroll deduction for auto and homeowner/renter insurance.

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The LLESA **Children's Center** is taking orders through Dec. 7 for gourmet cookie dough and Sonoma Valley cheesecakes. Orders will be distributed from Bldg. 415 on Monday, Dec. 17. Contact: Sue Wolfe, wolfe10@llnl.gov or 3-2423.

Broadcast Schedule

Lab TV

A segment of the Lab's community TV show, "Technology Today," featuring Lab scientist Page Stoutland discussing **"Combatting Bioterrorism/Biowarfare,"** will air on Lab TV channel 7 Dec. 3-13 at 10 a.m., 2 and 4 p.m.

Celebrating 25 years

JULIE KORHUMMEL/NEWSLINE

More than 100 employees who celebrated 25 years of service were honored recently at a breakfast. AD for Administration Jan Tulk emceed the event, held in the West Cafe.

Employees celebrating 25 years at the Laboratory were recently honored with a special breakfast. Those employees include:

Karen Alexander, Energy & Environment; **Thomas Altenbach**, Engineering; **Yolanda Apodaca**, Engineering; **Michael Atkinson**, Lab Services; **Jerome Auerback**, NIF; **Patricia Baisden**, Chemistry & Materials Science; **Rena Becker**, Computation; **Richard Bellmer**, Lab Services; **Douglas Berger**, Engineering; **John Bona**, Lab Services; **Thomas Brengle**, Lab Services; **Nora Briant**, Chemistry & Materials Science; **Winslow Brough**, Engineering; **James Brunk**, Energy & Environment; **Rachel Burke**, Engineering; **Karolyn Burkhart-Schultz**, Biology & Biotechnology Research; **Bradley Calderon**, Lab Services; **Miguel Cardenas**, Lab Services; **Karen Chandler**, Safety, Security and Environmental Protection; **Albert Cisneroz**, Engineering; **James Collins**, Lab Services; **David Counts**, NAI; **Phyllis Cretsinger**, Director's Office; **Thomas Crites**, NAI; **Kent Cummings**, SSEP; **George Davis**, Lab Services; **Lauren Devore**, NAI; **Ernest Dragon**, Engineering; **Evelyn Fearon**, Chemistry & Materials Science; **Ralph Flint**, Engineering; **Randolph Flores**, Engineering; **Janet Frame**, Computation; **Robert Frazier**, NAI; **David Fuess**, NAI; **Robert Gallegos**, SSEP; **Abel Garcia**, Strategic Operations; **Raul Garza**, Chemistry & Materials Science; **Timothy Gates**, Engineering; **Valerie Gentry**, Administration; **Robert Given**, Computation; **Patrick Gleason**, Lab Services; **Larry Gottlieb**, Lab Services; **Thomas Harper**, Defense & Nuclear Technologies; **Glenn Hermes**, Engineering; **Barbara Herron**, Computation; **Clifford Holmes**, Engineering; **Stephen Holmes**, Engineering; **David Hopkins**, Engineering; **Nicholas Howard**, Engineering; **Ronald Huett**, Lab Services; **Christine Hunt**, Lab Services; **Richard Hunt**, Lab Services; **Marian Irish**, SSEP; **Gregory Israe**l, Lab Services; **James Jellison**, Lab Services; **Roberta Jensen**, Defense & Nuclear Technologies; **Thomas Kaiser**, Physics & Advanced Technologies; **Ronald Kihara**, **Byron Kitt**, **Randy Krohn**, Engineering; **Dennis Lai**, Lab Services; **David Layton**, Energy & Environment; **Lynn Lewis**, Engineering; **Marion Manausa**, NAI; **Famie Mangabay**, Administration; **William McConachie**, SSEP; **Richard McCright**, Chemistry & Materials Science; **Barbara McDonald**, Lab Services; **Albert Miller**, Computation; **Holly Miller**, Energy & Environment; **William Miller**, Lab Services; **Gary Moeller** and **Rodney Moore**, Engineering; **Jay Morris**, SSEP; **Wendy Morris**, Physics & Advanced Technologies; **Lawrence Nattrass**, Defense & Nuclear Technologies; **Leon Newton** and **Robert Nyholm**, Engineering; **Connie Oakley**, NIF; **Alfred Parziale**, **Lawrence Pedrotti** and **Elvin Perry**, Engineering; **Dennis Peifer**, SSEP; **Lyn Pleasance**, Physics & Advanced Technologies: **Terrence Quick**, Chemistry & Materials Science: **James Rawlings**, Engineering; **Thomas Rescigno**, Physics & Advanced Technologies; **Paul Reynolds**, Lab Services; **Calvin Robb** and **Nils Roos**, Engineering; **Michael Rushford**, NIF; **Renato Santos** and **Ralph Saroyan**, Computation; **Steven Schmedinghoff**, Lab Services; **Tarry Schmidt**, SSEP; **Ronald Shaffer**, Energy & Environment; **Kenneth Skinnell**, Computation; **David Speaks**, Services; **John Stewart Jr**., Computation; **William Stigman**, **Paul Vanarsdall**, **Mark Vigars**, **Russell Vital** and **Kenneth Waltjen**, Engineering; **Mark Warmerdam**, NAI; **Mary Williams**, Lab Services; and **Stephen Wilson**, Engineering.

Request foreign travel online

A new system that allows Lab travelers to submit foreign travel requests via the Web is now available for use. It's called the Foreign Travel System (FTS) and it will replace the current paper-based system in early 2002.

The system, implemented by Safeguards and Security, will provide for Web-based origination of foreign travel requests and support the LLNL Foreign Travel Office in meeting DOE and LLNL travel request processing requirements.

The system has been beta tested and is now in the initial implementation phase, which will give employees a chance to become familiar with it and to offer feedback before it is fully implemented.

Training sessions are being done on a directorate-by-directorate basis and are now being scheduled. To set up a training session, contact Claudia Ambrose, 3-2503, or Wendy Bishop, 3-9135.

Newsline

Newsline **is published weekly by the Internal Communications Department, Public Affairs Office, Lawrence Livermore National Laboratory (LLNL), for Laboratory employees and retirees.**

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AROUND THE LAB

Survey action teams finalizing lists of recommendations

Survey Action Teams are finalizing lists of recommendations in response to the employee survey, "Assessing the Workplace." The recommendations will include both short- and long-term suggestions that will improve communication between supervisors and employees, training opportunities, work/life balance, employee empowerment and more.

Initial recommendations are due to the Survey Action Steering Committee on Dec. 4. The steering committee will assess those recommendations and provide feedback to the various action teams. Any revisions to those recommendations will be due Jan. 4; the action teams and steering committee will begin integration and consolidation of the recommendations on Jan. 9. The steering committee will present final integration and consolidation of recommendations back to the action teams on Jan 22. All final recommendations will be given to Director Bruce Tarter for presentation at the Senior Management Offsite in February.

Tarter hopes to approve recommendations for implementation by the close of the off-site, scheduled for Feb. 8.

What follows is a summary of possible recommendations to be presented to the Survey Action Steering Committee.

Pay, Benefits and Recognition

This action team has been renamed from its original title, Salary and Compensation, to promote "the entire package the Laboratory provides to its employees," said Computation AD Dona Crawford, who co-chairs the team with Chemistry & Materials Science AD Hal Graboske.

The team is focusing its efforts in six areas – three institutional and three directorate specific.

The institutional areas include:

• better communication of the total pay, benefits and recognition package provided by the Lab;

• the benefits package, which scored favorably in the survey, but is always being reviewed for potential improvements;

• a more consistent awards and recognition program.

Directorate specific areas include:

• the practice of high "start" salaries, or "hiring high";

• pay vs. market;

• protected classes.

Career Development and Training

This action team finds that communication of what is available in both career development and training is lacking. The group is studying recommendations from surveys conducted in 1989 and 1996 "to find what happened to the recommendations, what worked and what didn't," said Safety, Security and Environmental Protection AD Den Fisher, who co-chairs the team with Energy & Environment AD C.K. Chou.

Fisher said the group would tailor some of its recommendations to specific job classifications, noting possible overlap between his action team and the training and career development recommendations currently being explored by the 800s/900s Survey Action Team.

Performance Management

The team is finishing up its benchmarking with various research corporations and institutions, among them IBM, Los Alamos National Laboratory, Sandia and Jet Propulsion Laboratory, Naval Research Lab, Lincoln Labs, and Draper Labs. The compensation manager from JPL will meet with the group next week to further discuss its performance management system.

Jan Tulk, Administration AD, and Deputy Director Jeff Wadsworth co-chair the team.

Work/Life Balance

This team is concentrating on three specific areas: employee services, communication and flexible work schedules. The team will provide recommendations that could be implemented in the next couple of months, and others that will take more time to develop.

Some of the ideas being considered are: adding services such as on-site dry cleaning and postal services; improved food services; expanded LLESA services, such as additional exercise programs and childcare; and flexible schedules, such as a 9/80 work week. Other suggestions include enhanced communication on work/life options already available and how those can be used as motivating factors, as well as communicating to employees what is out there and how those options can be accessed.

The team is co-chaired by Deputy Director Michael Anastasio and Bruce Warner, acting deputy AD for NIF Programs.

Employee Empowerment

The team is looking at two types of empowerment issues: those where the survey suggests areas for improvement for the overall Lab population, and those where the survey shows that the Lab overall is doing well, but certain minority groups do not feel as positive as the overall population. For both types of issues, the recommendations will be directed toward giving employees everything they need to succeed: information, resources, work environment, and opportunity.

In the first category, the team is looking at communication issues, complaint resolution, and ways to make Lab climate more like Silicon Valley in its ability to allow people to challenge the traditional way of doing things. In the second category, the survey shows that ethnic and other minority groups perceive the Lab less positively than the overall population on questions related to the work environment, freedom to express opinions, respect from others, and feeling able to go to higher authorities when dissatisfied with a supervisor's decision.

The team is working to identify ways to ensure that all employees feel they are given an equal opportunity to participate and contribute. The group is co-chaired by Bruce Goodwin, AD for Defense & Nuclear Technologies, and Bert Weinstein, acting AD for Biology and Biotechnology Research.

800s/900s

This survey action team has formed a subgroup for each of the job classification series, with each group focused on three issues.

The 800s subgroup is looking at employee security, communication and training, while the 900s subgroup is looking at communication, training and supervision. The group will make recommendations such as newsletters tailored to the specific job classification series, increased all-hands meetings, reinstatement of apprentice programs and 360-degree performance appraisals.

The group is co-chaired by Steve Hunt, AD for Business Services, and Jens Mahler, acting AD for Engineering.

Postdocs

After conducting a series of focus groups, the Survey Action Team identified four areas to make recommendations:

• Operations – implementation of some policies, such as security and safety, have hindered postdocs' "ability to hit the ground running," according to Laura Gilliom, director of University Relations and co-chair of the action team.

• Orienting postdocs to the Lab – many postdocs have no idea where to go for the "basics needed to do their jobs," added Bill Goldstein, Physics AD and team co-chair.

• Pay – postdocs are compensated at different levels across Laboratory programs.

• Conversion – Postdocs seek guidance or assistance in finding their next job, whether at the Lab or elsewhere.

Deadline for completing annual Security Refresher Briefing is today

Employees are reminded to complete the 2001 Security Refresher Briefing by Nov. 30. The briefing is available on the Safeguards & Security Program Website at http://www-security.llnl.gov/ssdpub/IPSD/srb01_01.html and on the Grapevine (http://www-r.llnl.gov).

The briefing is available in booklet form from department offices for people who do not have access to unclassified computers and who have requested booklets through their departments.

All LLNL employees and contractors must read the briefing and take the quiz at the end. People who are exempt from this requirement are visitors, offsite contractors without clearances, contractors whose clearances are held at other DOE facilities and DOE employees.

In order to take the quiz on the LLNL internal Web testing system, you will need a Web ID (same as LITE ID) and password. If you do not have an ID and password, you can get one at https://www-ais.llnl.gov/llnl_only/docs/menu/.

New proposal for unclassified systems needs employees' comments

CIO UPDATE

–BY TED MICHELS

LLNL's Information Architecture (IA) project is responsible for developing the standards for hardware and software that conform to the requirements of Laboratory users. Part of this process is to offer proposed standards to the Laboratory community for comments and suggestions.

Last October the IA project proposed draft standard IA-1801, which specifies a process to securely install, configure, and manage unclassified computer systems. Version two of this draft standard is now available for your comment until close of business Monday, Dec. 17. The draft now contains security configuration guidelines for five operating systems in use at LLNL:

• NT 4
• Unix Generic
• IRIX
• Linux
• Solaris

In addition to these, draft configuration guidelines for other operating systems are being written and will become part of this standard in the future.

Laboratory users can view the full text of this proposed standard at: http://ia.llnl.gov/rfc/ia1801/ia1801.html. This draft standard refers to existing policy, P-2022 (see http://www-r.llnl.gov/cso/Pubs/u-docs/P2022.pdf) and IA Statement of Direction IA-0401 (see http://www.llnl.gov/projects/ia/standards/ia0401/ia0401.html). Policy P-2022 specifies a baseline of security to be consistently applied across all unclassified systems connected to LLNL networks to mitigate the threat of cyber attacks. This new standard, IA-1801, is intended to provide a process to comply with this policy for each of the different systems in use at LLNL.

Persons who would like to offer comments regarding this proposed standard can click on the "Comments" button on the IA-1801 Website mentioned above or simply send e-mail to the Information Architecture Office at: ia-rfc@llnl.gov. Your comments are welcome and will provide input into the approval process for this proposed standard.

TELLER

Continued from page 1

recent years, are traced in the just-released book, "Memoirs: A Twentieth-Century Journey in Science and Politics." Written with his longtime editor Judy Shoolery, the book is printed by Perseus Publishing.

"In my opinion, Livermore made a very real contribution to the winning of the Cold War, and the winning of the Cold War without bloodshed," Teller said in a recent interview.

In his book, Teller describes that in some ways, the nation's second nuclear weapons laboratory grew out of a misunderstanding with Los Alamos' then-director, Norris Bradbury.

In 1950, in a bid to counter a negative report by Bradbury about the prospects of developing a hydrogen bomb, Teller and another scientist, Johnny Wheeler, wrote that if the H-bomb efforts proved successful, Los Alamos might not have sufficient capability to answer all of the important questions.

As a result, Teller and Wheeler surmised that Wheeler and others might need to work on other weapons issues at Princeton in a second laboratory. Bradbury, however, apparently believed Teller was trying to create competition for Los Alamos.

Eventually, when Teller decided there were too many obstacles to develop the hydrogen bomb at Los Alamos, he left to begin advocating for a second weapons laboratory.

With backing from Ernest Lawrence and others, between November 1951 and the summer of 1952, Teller made presentations and met with influential military and political officials about the need for a second laboratory .

Teller addressed a committee that supervised the Atomic Energy Commission in Washington, D.C. He also met with Gen. Jimmy Doolittle; Thomas Finletter, secretary of the Air Force; and finally with Secretary of State Dean Acheson, AEC Chairman Gordon Dean and others.

Soon after he met with Doolittle at a Scientific Advisory Board meeting at Cape Canaveral, Fla., Teller writes that he received a call from Lawrence. "Ernest invited me to come to Berkeley to talk with him. I went, and on Feb. 2, 1952. Ernest took me to view a site that he felt would be an appropriate place for the second weapons laboratory, a one-square-mile area near the little town of Livermore. During World War II, the site had served as an inland Navy base for training pilots. After the war, the base was closed and sat idle until 1950; then Lawrence acquired the land as the site for the material testing accelerator (MTA)."

In June 1952, the Atomic Energy Commission recommended the establishment of a second weapons laboratory — but did not immediately select a location.

The second Lab was sought by the University of California and Lawrence, who hoped to name Herb York as its director. York had worked at Oak Ridge on the uranium separation process during World War II.

Lawrence also recommended that Teller should come to California to assist in the establishment of the new laboratory. That decision, Teller recalls, was "one of the most difficult I have ever had to make." For the University of Chicago physics professor, the Windy City was the home of his closest friends, a hospitable place for immigrants and the place where he was most content. Ultimately, he made the decision to head west.

When the Laboratory opened its doors on Sept. 2, 1952, Teller remembers that the site was still in a rather rudimentary state. With few telephones, only Herb York had a private line; the local post office couldn't offer a post office box for the new institution; and even with less than 150 people, there were barely enough desks.

"But there was plenty of enthusiasm, energy and excitement in our setting."

Within the first year of the Laboratory's founding, Teller points out, the pool of talent hired provided the Lab's directors for its next four decades. The ranks of future directors included Harold Brown, John Foster, Mike May and Roger Batzel. One other future director, John Nuckolls, came to the Laboratory by 1955, nearly part of the original group.

"Finding so many exceptional leaders among the first hundred people who joined the Laboratory is a remarkable record. This group alone would have made the concentration of talent at Livermore striking," Teller said.

One other future director who was hired within the Lab's first year was Teller himself, who in 1958 succeeded York, when York assumed a Department of Defense position.

Toward the end of 1958, an interim ban on nuclear weapons tests went into effect between the United States and the Soviet Union. President Eisenhower instructed the two laboratories to be ready to start testing in the event the Soviets started testing.

Teller himself had personally supported continued testing for two reasons — to increase knowledge and because of the difficulties with enforcing a ban and detecting violations.

> ***"When I came to the United States, I enjoyed the possibilities of science and teaching. . .***
>
> ***–Edward Teller***

During the interim ban, Teller had the Laboratory make as much use of computers as possible and develop more powerful computer codes that could perform two-dimensional instead of one-dimensional calculations. Teller continued as director until mid-1960, when Harold Brown took his place.

Three years later, in 1963, Teller helped found the UC Davis' Department of Applied Science, which represents the first and most comprehensive use of a national laboratory for graduate student education and research. The Department of Applied Science has awarded more than 200 Ph.D's, and nearly an equal number of master of science degrees.

Brushes with tyranny

Although most Americans have never experienced tyranny, Teller's brushes with totalitarian regimes in Europe helped shape his future views on military preparedness and peace through strength.

As an 11-year-old boy growing up in Budapest, Teller and his family lived under Western Europe's first communist regime outside the Soviet Union, the 1919 four-month terror crusade of Béla Kun. Those memories still live for him.

"My biggest problem was that I was hungry," Teller writes in his book. "There was no food (or any other kind of goods) for sale in the stores now owned by the communists, because their money was worthless."

On weekends, Teller's father would take some illegal blue money from the bindings of his law books and, with Edward and his sister Emmi, walk to farms around Budapest to purchase whatever food was available.

"But there was not much to buy. As I recall, cabbage was often all we could find. I still dislike cabbage."

In Teller's opinion, the 20th-century history of his native Hungary provides a stark illustration of the dangers and harm that can befall a nation that lacks a strong military capability.

After Hungary suffered defeat in World War I, the nation was stripped of half its citizens. Later, it became a dictatorship, initially of the extreme left and then of the extreme right. During World War II, Hungary was again defeated and became a client state of a powerful totalitarian regime.

"Those events cost hundreds of thousands of Hungarians their lives, and those left alive lost their freedom," Teller wrote. "Small wonder that emigrant Hungarians, with both their lives and their freedoms safe, were eager to secure the survival of their hard-won life raft."

Teller had other encounters with the early stages of tyranny as a young scientist living in Germany. After studying quantum mechanics and receiving his doctorate under the renowned Werner Heisenberg at the University of Leipzig, Teller later moved to Göttingen.

He lived in Göttingen, the historic center of German mathematics and physical science between 1930 and 1933. Teller served as an assistant to Arnold Thomas Eucken, a physical chemist, and soon thereafter, also to experimental physicist James Franck, who became Teller's mentor.

In early 1933, Adolf Hitler was made the chancellor of Germany and as Teller describes it, "within a week, I caught a glimpse of the future."

With the rise of Nazism, the scientific community of Great Britain made a rapid response that surprised Teller. Within about three months of Hitler's ascension to power, the British started a rescue operation for scientists in Germany, including Teller, whose ethnicity or politics made them vulnerable.

In his first visit to the West, Teller spent time in Britain as a guest of a noted British scientist, George Frederick Donnan. Because Donnan arranged a position for Teller at City College London, the young scientist was able to accept a Rockefeller Foundation fellowship in Niels Bohr's laboratory in Copenhagen.

After teaching for a year at University College in London, Teller and his new wife Mici immigrated to the United States in 1935, with Teller taking a physics professorship at George Washington University.

"When I came to the United States, I enjoyed the possibilities of science and teaching — and I had practically nothing to do with defense," Teller said in a recent interview. "Then (fellow Hungarian physicist) Leo Szilard came to me with the suggestion that we must go ahead with developing nuclear explosives." It was Szilard who in 1939 wrote a draft letter to President Roosevelt — on behalf of Albert Einstein — warning the U.S. government of the possibility that Germany might be able to create a new nuclear weapon.

Because Szilard couldn't drive, he asked Teller to transport him to Einstein's home on Long Island for him to review the letter that would be sent in the famous physicist's name.

Around this time, another Teller friend, physicist Enrico Fermi, declined to attend a governmental meeting. "But," he told Teller, "I will tell you what I should say if I were to go. You can deliver the message."

These two events, when combined, put Teller's noted humor on display: "Thus, I was promoted from chauffeur to messenger boy."

In May 1940, Teller attended a Pan American Congress, where President Roosevelt spoke for about 20 minutes, calling on those present "to protect and defend by every means at our command, our science, our culture, our American freedom and our civilization."

For Teller, who was worried about the possibility of the new weapon but was happy in academia, the

See **TELLER,** *page 5*

EDWARD TELLER

Edward Teller, graduating from the Minta, 1925

MEMOIRS

'Memoirs' on sale now

Copies of Edward Teller's book, "Memoirs," can be ordered for $21 per copy through the LLESA office. The deadline for orders is Monday, Dec. 10.

TELLER

Continued from page 4

speech resolved the dilemma of what he should do.

"I was one of the fortunate helped to escape from the Nazi threat. I was now enjoying the comforts and many benefits of living in a democracy. I had the obligation to do whatever I could to protect freedom."

H-bombs and submarines

While Teller performed defense work for the nation out of a sense of duty, he did it even more out of a sense of alarm.

Following the end of World War II, many in the American scientific community refused to work on the development of a thermonuclear weapon, or hydrogen bomb. Some scientists felt it shouldn't be studied as a good faith gesture to the Soviet Union, and others reasoned that such a devastating weapon should never be researched because there would be no defense against it.

James Conant, the chairman of the General Advisory Committee, which supervised the Atomic Energy Commission, declared the H-bomb would be built "over my dead body." Both Fermi and Hans Bethe declined to work on the project.

Teller said he realized in 1942 that after an atomic bomb was feasible, a thermonuclear weapon represented the next logical step. "I had little doubt that the Soviets had been working on it for some time." In the long run, he was right.

Andrei Sakharov, the former Soviet H-bomb designer and later dissident, wrote in his memoirs: "Josef Stalin, Beria and company already understood the potential of the new weapon, and nothing could have dissuaded them from going forward with its development. Any U.S. move toward abandoning or suspending work on a thermonuclear weapon would have been perceived as a cunning, deceitful maneuver or as evidence of stupidity or weakness."

In 1955, during a conference at Woods Hole, Mass., that was designed to provide technical advice to the Navy, Teller suggested Livermore scientists might be able to develop a nuclear warhead small enough to be placed on a missile and fired from a submarine.

Carson Mark of Los Alamos indicated that he believed such a task couldn't be done.

Noting Livermore's talented young physicists and recent advances, Teller then made a concrete proposal: "For a certain amount of money and in five years time, Livermore could produce a lightweight thermonuclear weapon of a certain small size, suitable for transport by a small long-range missile and powerful enough to be effective."

Mark then changed his position about the feasibility of developing submarine-launched missiles and offered his own proposal — but with more cost, less explosive power and more time to achieve the goal.

That led Adm. Arleigh Burke to comment, "All that doesn't make much difference. The important thing is that you now agree that it can be done. However, since Teller has promised us more, let him do it."

In the end, Teller contended the results of that decision "proved important to the development of the nation's defense and to the fledgling Livermore Laboratory."

It was important to national security because it added the third leg of the nuclear retaliation triad (submarine-based missiles) to strategic bombers and land-based missiles.

"…Because of the difficulty of finding a submarine, the deterrent effect of submarine-based missiles remained uncompromised to the end of the Cold War," Teller writes.

Personal insight

Through his book, insights are gained not only into Teller as a scientist, but as a person — his courtship and marriage to the woman, Mici, he knew from his youth in Budapest, his children, his love of pure science and even his hobbies, such as ping pong and music.

Ernest Lawrence, Edward Teller and Herb York, about 1957.

As a student in Leipzig, Teller defeated the father of quantum mechanics, Werner Heisenberg, in ping pong. However, Heisenberg went to Japan by ship and played ping pong with a young man who was an expert. After that, Teller was never again able to defeat Heisenberg.

In his life, Teller writes that he has made few purchases of material goods —but probably his favorite "buy" happened in 1941, when he spent three months of Sundays looking for a piano. He finally found a small concert grand Steinway.

Teller has played and enjoyed his Steinway for more than 50 years.

In an October article in Insight magazine, James Lucier wrote: "…Teller's concepts and work in physics have had a decisive impact in shaping world peace during the last half-century. And even in his mistakes, his instincts proved to be right. A man of wide-ranging interests and culture, Teller often is ranked as one of the most influential persons of the 20th century."

Throughout his youth and early adulthood, Edward Teller always dreamed of becoming a professor of physics. His memoris prove how he became that — and much more.

Casual conversations with writer leads to Teller's life story

By Stephen Wampler
NEWSLINE STAFF WRITER

Judith Shoolery clearly remembers the day she met Edward Teller. It was Sunday of the 1979 Labor Day weekend at Teller's home on the Stanford campus, and Shoolery was interviewing for a job as his Hoover Institution editor.

"I immediately knew this was going to be more of a publishing position than an academic position, with tight deadlines and unusual hours because of the busy schedule that Dr. Teller kept," she recalls.

"What do you know about me?" Teller queried, meeting her at the door. "You're a theoretical physicist, you worked on the atomic bomb, you worked on the hydrogen bomb and I think you won a Nobel Prize," she replied.

"Well, you're right on three of the four counts, so come in."

So began a writing collaboration that has spanned more than two decades, three books and scores of op-ed articles on topics ranging from national security and ballistic missile defense to nuclear power.

Their latest book, the 569-page "Memoirs: A Twentieth-Century Journey in Science and Politics" by Perseus Publishing, hit bookstores nationally in early November.

"It's been a tremendous challenge and a true delight to work with Edward," Shoolery says. "The book was pretty much a collaborative effort."

The Teller memoirs developed from their early years of work when Shoolery often chauffeured the former Laboratory director to the airport or speeches and picked up stories about his life along the way.

"He would tell me about his life as a young person, as a student and discuss the various important events and fun stories about his life. I would write up the stories and save them."

Through the years, Shoolery and other editors, including Linda Greenspan Regan of Plenum, urged Teller to write his memoirs. For a long period, Teller wasn't interested. "This is not a topic of importance. This is just personal stuff," he told Shoolery. But persistence won out.

In a recent interview, Teller credited Shoolery as being instrumental in his decision to pen the memoirs that describe his role in some of the landmark events of the 20th century.

"She kept telling me I should write my memoirs — gently, indirectly and effectively," Teller said.

Describing his book, he said: "The English was hers; the Hungarian was mine."

While Teller dictated a substantial portion of the book, Shoolery also wrote sections that the pair then worked on together. After 1985, Shoolery generally worked at home rather than at Teller's Hoover office on the Stanford campus because of the bustle of activity there.

"Whenever there is humor in the book, that's Edward," she said. "He has a real gift for humor and telling stories."

Shoolery is quick to share credit for the scientist's memoirs coming to fruition with Teller's administrators, Lab colleagues, Lab archivists and Lab reference librarians.

Gen Phillips and Joanne Smith, who have worked with Teller for 35 years and 15 years respectively, were particularly singled out for their efforts in helping the book become a reality.

"They are the most wonderful resource people on the face of the Earth. They unearthed files and they labored tremendously. They are the people you dream of when you are writing someone's memoirs," Shoolery said.

As part of her preparations for the book, Shoolery interviewed former Lab directors Roger Batzel, Johnny Foster and John Nuckolls, as well as current or former Lab employees, including Ed Fleming, Duane Sewell, Lowell Wood, Milo Nordyke, Carl Haussmann and others.

"All of these people were wonderfully fun to talk with. I think Dr. Teller is quite unique in the number of generous and gifted people that he has in his circle of friends."

Others receiving plaudits from Shoolery for their help were current or former Lab archivists Beverly Bull, Jim Carothers and Steve Wofford, along with reference librarians Rich Hunt, Fred Frost and others.

"Memoirs" represents the third book on which Teller and Shoolery have collaborated. Their first book, "Pursuit of Simplicity," was published in 1980 by Pepperdine Press and is a layman's introduction to the great ideas of physics, including astronomy and quantum mechanics, in addition to dealing with mathematics and technology. The second book, "Better a Shield Than a Sword" was published in 1986 and discussed the need for a ballistic missile defense system. Also, in 1980, the duo revised and updated another Teller book, "Energy from Heaven and Earth."

With "Memoirs" hitting the bookstores, Shoolery says she is happy about the book because she sees it as a completion of the historical record.

"I believe the book presents many ideas of continuing importance to our nation — among them, the importance of defense preparedness and the vital nature of international cooperation."

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SOUTH LAKE TAHOE - 3 Bedroom 2 Bath Chalet, nicely furnished,all amenities,close to all skiing, Reserve Holidays/Skiing Now!New Years week OPEN! 209-599-4644

Maui, HI - Kahana Reef oceanfront 1BR/1BA condominium. Beautiful two-island view, oceanside pool, and BBQs. Low LLNL rates for year-round reservations. 924-423-6379

MAUI Kihei spacious oceanfront condo: ocean view, white sandy beach, pools, tennis, BBQ, snorkeling, whale watching. Pro golf nearby. Low LLNL rates. 925-846-1459

WANTED

Wanted set of four Trim rims size 14, at reasonable price 209-531-1527

Cymbal Boom Stand for a beginner drummer. 925-828-6737

WANTED:Stackable washer and dryer 209-236-1754

Burger King Simpson Halloween Toys: Barney, Ned Flanders, Dr. Hibbert, Principal Skinner, Homer, Groundskeeper Willy, Grandpa. Will pay $5 each. 925-447-5808

Outdoor Christmas Lighted 3D deer/buck decorations, working or not. Call me 209-825-5222

Make income on your motorhome! Rent it to our family for a trip to Arizona between Christmas and New Years this year. 925-443-5714

Would like to rent your 25-29 foot RV for summer vacation to Yellowstone and Mt. Rushmore. 2 Adults/2 Children. Desired dates July 13-23. 925-447-2697

Looking for small (childs) wood desk for my sons room, boy age 6, in good condition. 925-634-8134

WANTED: Old stereo equipment, vacuum tubes, speakers, amps, consoles, etc. 925-443-2954

Someone to sit my spoiled two year old mini poodle, Teddy, at your home while on vacation from 1/21/02 to 1/29/02. 925-648-0671

To buy a 9ft. x 17ft Splash Super Pool. 209-892-6814

Due to space limitations, *Newsline* may withhold ads that have already run. They will still appear on the Web.

The deadline to turn in packets for the HOME campaign has been extended to Dec. 17.

THE HOME PAGE

Marching HOME to a Gentle four-legged companion

By Lynda Seaver
NEWSLINE STAFF WRITER

Anita March is never more than an arm's length away from her newest friend and closest traveling companion. This friend, the four-legged sort with a cold nose and a tail that won't quit, also serves as March's eyes.

Over the years, employees have come to know March, a building coordinator in HR's Employment & Benefits Services Division, through the guide dog that always accompanied her. Until a year ago, that dog was a friendly golden retriever that answered to the name of Hollister. But after nine years of active duty, Hollister was slowing down. He's retired, and now spends lazy days basking in the sunny spots of March's back yard.

For the last six weeks, March has been accompanied by an equally friendly yellow Labrador, appropriately named Gentle. Like Hollister, she guides March everywhere, camping out under her desk for an occasional snooze or, on this day, playing with toys while March talks to her visitor. At just under 2 years of age, Gentle still has plenty of puppy behavior in her, and she is quick to rest a head on a stranger's lap in hopes of a scratch behind an ear.

"We're still getting to know one another," March said. "Hollister became a natural extension of me. Gentle is sharp and she's still getting used to my routes, but we are learning to trust one another."

Ask March to talk about either of her guide dogs and conversation will quickly turn to the source, Guide Dogs for the Blind. Headquartered in San Rafael, the nonprofit has a vast network of volunteer breeders, trainers, veterinarians and other caregivers who supply guide dogs at no cost to the blind and legally blind. The organization is supported entirely through private donations and fund-raising drives such as the HOME Campaign. Last year, 48 Lab employees contributed just under $6,000 to Guide Dogs for the Blind.

Established in 1942 to serve blinded World War II veterans, Guide Dogs for the Blind has placed more than 8,500 dogs across the United States and Canada.

"They do everything they can to help you," said March of the organization. "My dog gives me a greater sense of independence. I can go out for longer periods and I can get around much faster."

It was a lost battle with denial that led March to Guide Dogs for the Blind more than 10 years ago. March started losing her eyesight at 16, the result of a viral infection in both eyes. Though she still has limited sight in one eye, she is legally blind.

Yet for years, March held out against cane training to help her get around. "My shins were riveted with bumps and bruises; I was in so much denial over my vision," she said, laughing at the memory.

Employee Anita March with her guide dog, Gentle.

A nasty fall finally convinced her to get the cane training she needed, but it still wasn't enough. She contacted Guide Dogs for the Blind and was paired up with Hollister.

"When walking with a cane you are constantly working," she said. "It takes much longer to get from one point to the next. With the dog all you say is forward and you are on your way."

It takes more than two years of special care and training to produce a guide dog. Puppies are pulled from their litters at approximately eight weeks, based on disposition and behavior. They are placed in foster homes where they receive basic obedience training. At 18 months to 2 years they are returned to Guide Dogs for the Blind for four to five months of formal training with licensed instructors. The dogs are taught to walk in a straight line, stop at curbs, stairs and other changes in elevations, turn right and left, avoid obstacles and ignore myriad distractions. Then they are paired up with their owners for 28 days of additional training.

"Everyone thinks these dogs read traffic signals, they know when cars are coming, or they naturally know how to get to your corner market," said March. "But that's up the dog's handler. The dog walks you based on what you tell him. You have to count the blocks, listen for the traffic and determine when it is safe to cross the street."

Dogs that don't perform up to expectations are either given refresher training or placed in foster homes. When dogs are retired, the handler has the option of returning the dog to Guide Dogs for the Blind or keeping it. March chose to keep Hollister.

"He was such a terrific guide and he will always be my special man," she said of her longtime canine companion. "I just couldn't give him up. But now I have my special girl and we are becoming the best of friends."

March was so worried about any anxiety or jealousy Hollister might feel as she transitioned to another dog, that she gave up using a canine guide for nearly a year. "I had to rely on that cane for a year – it was one of the roughest times in my life," March exclaimed. "But it was worth it for Hollister. I wanted to ease him out of his duties. Every once in a while he still comes up to me when I grab Gentle's harness, but he's getting used to the retired life."

Hollister was the Lab's first guide dog. He even received his own Q clearance, complete with a photo badge. "It was the fastest clearance in history — it took about 30 minutes," March chuckled.

Both Hollister and Gentle remain equally liked among March's colleagues. Sit in her office for any period of time and co-workers will come in to pet Gentle or offer to take her out for a quick walk, or they'll inquire about "Holly," as March often calls him. Though guide dogs are taught to avoid distractions, March doesn't mind the occasional stranger walking up to pet Gentle.

"Gentle is an ambassador for Guide Dogs for the Blind," she said. "Seeing these dogs in action speaks volumes for what the agency does."

March herself often goes out to schools and various speaking engagements to promote the agency.

"Volunteering is my way of giving back," March said. "These dogs are such a gift of love. Because of Gentle, I have my freedom. There is no place I cannot go."

HOME contributions to date: $798,771

Directorate	Total Employees	No. of Contributions	$ Donated	% Participation
Energy and Environment	319	106	$35,998	33%
Computation	986	219	$95,276	22%
Safety, Security & Environmental Protection	984	280	$79,449	28%
Physics & Advanced Technologies	393	109	$36,201	28%
Defense & Nuclear Technologies	400	152	$66,104	38%
Chemistry & Materials Science	468	141	$58,667	30%
Laboratory Services	1348	414	$111,978	31%
Engineering	2075	454	$166,064	22%
NIF - ICF	192	44	$18,163	23%
CFO	94	48	$13,825	51%
NAI	250	99	$41,230	40%
Director's Office	159	43	$23,769	27%
Administration	286	91	$23,241	32%
Biology & Biotechnology Research Program	235	82	$21,891	35%
Supplemental Labor	N/A	31	$3,945	0
Others	N/A	13	$2,970	0
TOTAL	**8189**	**2,326**	**$798,771**	**28%**

HOME incentives

JERRY WOOD/NAI

Karen Rosenberg, (right) is one of the latest incentive winners in the HOME Campaign. Roger Werne (left), campaign chair, officiates the weekly drawings for employees who return their packets by set dates. See www-r.llnl.gov/home2001/ for information.

Newsline *correction: Larry Grieb appeared in the Nov. 16 HOME incentive photo and was incorrectly identified as Glenn Black.* Newsline *regrets this error.*

NIF

Continued from page 1

technical review of the NIF Project. Their goal was to determine the technical progress of the project, whether it has continued to meet all associated milestones and to assess the project's performance regarding its cost and schedule objectives since the previous review last February. The review team was especially interested in optics development and manufacturing, and installation of the beampath infrastructure system.

The three-day review began with a plenary session and a tour of NIF. The next two days consisted of smaller breakout groups, which allowed the reviewers to "dig down into the details" to provide as thorough a review as possible.

"All the team members are very impressed," Clark said. "NNSA milestones are being met on schedule, if not earlier. Costs are under control. Regarding the schedule, NIF is well ahead of many DOE/NNSA milestones. The optics group is making excellent progress in both the research and development efforts and in manufacturing. And the installation of the Cluster 3 beampath in the laser bay was incredibly well organized."

Clark complimented the NIF Project's strong management team and its effective organization. He also complimented NIF for being so responsive to the recommendations of the two previous DOE/NNSA review teams.

"We recognize that the project is funding limited over the next few years," Clark admitted. "But given that, you're still showing excellent results."

And while he said significant safety improvements have been made, he stressed that management needs to continue paying attention to safety. "Don't drop your guard," Clark said. "Keep up the good work."

Finally, Clark will be recommending that NNSA "plans and fund all activities needed to make the NIF Program successful, including cryogenics and diagnostics to support the experimental program."

Jim Anderson, director of the Office of the NIF Project, DOE/NNSA, said in closing the review: "NIF staff, your efforts are appreciated by the NNSA. Your work is outstanding. You're doing great things. Keep up the good work."

And though the audience moaned when Anderson said: "We'll be back in six months." All agreed when he said: "Just think how exciting it'll be in a year and a half when we have first light."

Mike Anastasio, Deputy Director for Strategic Operations, thanked the DOE/NNSA review team for their constructive comments.

NIF Project Manager Ed Moses responded to the review comments saying: "This is our third review. We take your recommendations very seriously. We study them and incorporate them into how we will execute NIF in the future."

Then Moses thanked "Team NIF for allowing us to make this impressive progress. I'm proud to be a member of NIF. I'm proud to be a part of the Lawrence Livermore National Laboratory and I'm thankful for all its resources that have contributed to NIF's success. I'm also pleased that Jacobs Engineering, Parsons Engineering and all of our vendor community have teamed with us to make this project successful."

To the government officials conducting the review of NIF in mid-November, the experience was well organized, efficient, and jam-packed with information. To the technical presenters, scientific & engineering, administrative, TID, and facilities staff working behind the scenes, the review represented weeks of effort. "We have very well trained, hardworking, and dedicated people," said Sherry Graham, NIF Programs administrator. "It takes an incredible amount of coordination and support by the multi-disciplinary teams from throughout the Lab to successfully pull a review of this size off."

Clark closed the session saying: "Excellent results! You're doing an incredible job."

TRUCKS

Continued from page 1

The Governor's Task Force on the Safe Delivery of Fuels was formed to address the challenge, with McCallen and Wattenburg, as well as representatives from the CHP, fuel and trucking industries.

In October, the governor contacted the Lab requesting assistance "to develop a method of stopping such a truck if stolen by a terrorist." The result was a relatively simple mechanical device attached to the back of a tanker truck, designed to stop a stolen or hijacked truck. When bumped from the rear, a blade on the inside of the bumper sheers a special air hose to the brakes. (The air hose is reconfigured to run beneath this bumper.) The brakes on all such trucks are designed to lock in the event of the loss of air pressure.

The device is vandal-proof, Wattenburg explained. An anti-disabling feature is incorporated into the system that activates the truck's mechanical emergency brakes if an effort is made to disable or bypass the device.

In case of accidental deployment, truck drivers can repair or reset the device to normal operating position in about 15 minutes. However, this cannot be done from within the truck's cab. The driver would be required to leave the cab and walk to the rear of the truck, allowing law enforcement access to the driver.

Future testing, including tractors controlled remotely by radio, will take place at the Nevada Test Site near Las Vegas in January and February 2002. Tests will include runs at high speeds and with actual fuel in the tankers.

"At NTS, we will be able to take advantage of our radio-controlled test equipment and wide open spaces, allowing us to do very dangerous things in a very safe way," McCallen said.

The initial design and engineering work done at the Lab for this project was funded with an internal Public Interest Work grant. This is money set aside by the Department of Energy for special projects with the potential to impact public health and safety. Funding for the next phase of testing and refinement will come from the State of California.

Following the governor's remarks, Lab Executive Officer Ron Cochran addressed the crowd, calling the Truck Stopping Device, "Livermore Lab's latest step in resistance to terrorism."

Cochran went on to thank some of the device design team members, including McCallen, Mark Strauch, deputy associate director for Electronics Engineering; Pat Lewis, EE technician; and heavy equipment operations staff Dave Carter and Duane Smith. Cochran also thanked National Nuclear Security Administration administrator John Gordon and the Department of Energy for their support in the expedient development of this potentially life-saving device.

COMPUTING

Continued from page 1

Blue holding the number five ranking. Livermore has three other machines in the top 100. Five of the top 10 machines are managed for Department of Energy by the University of California.

"ASCI White is a very large team effort," said Dave Nowak, LLNL ASCI program leader, at the Top500 ceremony. "This is the first truly tri-lab machine benefiting Livermore, Los Alamos and Sandia national labs."

"When you're number one, everybody looks at you closely," Crawford said, noting that there is a great deal of interest in high-end computing in the pharmaceutical, automobile and aircraft industries.

Crawford said the Lab's relationship with industry is a partnership and that because high-performance computing is a limited commercial market, the labs play an important role in developing new applications.

"In this symbiotic relationship, we act as early first users for these new developments," she said. "The goal of ASCI is not only stockpile stewardship, but to further the U.S. computer market."

While there are ongoing collaborations and dialogue between industry, academia and the labs, SC2001 is the opportunity for participants to "show their stuff" as well as exchange ideas. The conference includes an extensive technical program including tutorials, workshops, panel discussions and paper and poster presentations.

"This is also an opportunity for sponsors to come and assess the progress of the programs they are funding," Crawford said. "In a sense, it serves as a program review."

Global Grid Showcase

Much of the attention from media focused on the SC2001 Global Showcase, demonstrating potential applications for the high-power — 15 gigabits of bandwidth — network.

Bill Lennon, Lab engineer, organized a 45-minute presentation and multi-site interactive demonstration using the SC Global Grid Showcase on the Visible Embryo Project. The project is building a 10+ PetaByte Digital Library to support teaching, research and clinical planning in embryology.

Participants from all over the world could "look over the shoulders" of Visible Embryo Team members as they collaborated to describe the project from four Access Grid Sites near their home institutions. The Access Grid sites were in Arlington Va., Argonne, Ill., Denver and Livermore. Audio/video feeds were multicast from each site in addition to a synchronized PowerPoint presentation and a multicast image of the application window being demonstrated.

"This is a powerful new medium for collaborative scientific research," Lennon said.

Jeff Olsen of LLNL's Electronics Engineering (EE) set up and ran the temporary advanced communications and networking installation in Bldg. 132. George Pavel, also of EE, negotiated the Laboratory's participation with the other three access grid sites. Brian Bodtker and Paul Atwal of EE assisted Olsen and were trained as backup "directors." Mark Strauch participated as an LLNL virtual seminar attendee.

The project basis is the Carnegie Collection of Human Embryology located at the Human Development Anatomy Center of the National Museum of Health and Medicine within the Armed Forces Institute of Pathology. Team members with complementary expertise are located at eight institutions throughout the country, which are linked by "Next -Generation Internet" research networks.

The Laboratory had lead responsibility under Jean Shuler for the tri-lab ASCI booth in the Denver Convention Center this year. The booth featured a power wall used for presentations by Livermore, Sandia and Los Alamos researchers. Mark Seager, Steve Langer, Jack Reaugh and Valerio Pascucci were among the LLNL researchers who made presentations at the ASCI display wall.

Many other Laboratory employees, too numerous to mention, participated in SC2001, presenting peer reviewed papers, tutorials, research posters and coordinating or joining the Birds of a Feather sessions. The full conference program can be found at http://www.sc2001.org/.

SC2002 will be held next November in Baltimore under the theme "Terabytes to Insights." Details available at http://www.sc-conference.org/SC2002/.

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